

MEMO

Date: October 11, 2004

To: Regional Council

From: Transportation and Communications Committee

RE: Regional High-Occupancy Vehicle Lane System Performance Study

RECOMMENDATION: Information Item.

SUMMARY:

The attached Executive Summary describes ten findings/conclusions and eight recommendations that emerged from this study, all consistent with the adopted 2004 Regional Transportation Plan and with work conducted by the Los Angeles County Metropolitan Transportation Authority (2002).

In overview, polling results confirm that 76% of respondents in the study area support or strongly support HOV lanes. Favored are 24 hours, 7 days-a-week operations, HOV lane separation from mixed-flow lanes and the 2+ HOV lane occupancy requirement.

BACKGROUND:

The Southern California Association of Governments (SCAG) conducted this study for the purpose of analyzing the current performance of the HOV lane system in the region. The study area consists of the counties of San Bernardino, Riverside, and Orange. Los Angeles County is not included in this study because the Los Angeles County Metropolitan Transportation Authority recently completed the HOV Performance Program Evaluation Report (The Parsons Brinckerhoff Study Team, November 2002) for Los Angeles County, which the SCAG study is designed to complement.

DISCUSSION:

Technical results indicate the continued development and operations of HOV lanes is followed by gradual growth of ridesharing, existing lanes are well utilized, typical HOV lane trips offer travel time savings ranging from 1-15 minutes, HOV lane to HOV lane direct connectors (interchanges) although costly reduce accident rates, mobility performance indicators (VMT, VHT and Travel Speed) are optimized with a 2+ occupancy requirement today and well into the future, violation rates are very low (1.2%) and transit operations currently contribute relatively little to person movement in the study counties.



MEMO

Through the HOV Study TAC, study recommendations include: (1) continue all-day, all-week, 2+ vehicle occupancy requirements with limited access/egress HOV system operations, (2) address congested segments on a case by case basis, (3) defer 3+ conversion strategies as long as possible, (4) emphasize transit investment to increase occupancy on HOV lanes, (5) complete the programmed and planned HOV lane system including mainline and direct connectors in order to capture system and traveler benefits, (6) undertake future research regarding HOV lane design and implementation, (7) access strategies to increase HOV lane through-put and (8) support HOV performance monitoring.

These recommendations are consistent with the adopted 2004 Regional Transportation Plan. In addition, staff recommends forwarding recommendations relating to transit usage of HOV lanes to SCAG Transit Task Force for further consideration.

FISCAL IMPACT:

All work related to approving the recommended staff action is contained within the adopted FY 2004-2005 budget and does not require the expenditure of any additional financial resources.

attachment

California Association of Government



Executive Summary

September 20

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A REGIONAL HIGH-OCCUPANCY VEHICLE (HOV) LANE SYSTEM PERFORMANCE STUDY

EXECUTIVE SUMMARY

"HOV gap closures that significantly increase transit and rideshare use will be supported and encouraged...." - 2004 RTP

1.1 INTRODUCTION

High Occupancy Vehicle Lanes, also known as rideshare/carpool lanes, are very popular with the traveling public, enjoying 76% study area support and have become an integral component of Southern California's transportation system.

Since the first HOV lane opened in 1976 in the region (the El Monte Busway, located along on Interstate 10 in Los Angeles County) the HOV system increased to 54.9 lane miles in 1990 to 664 lane miles in 2000 (see Table 1). An additional 739 HOV lane miles are planned for construction by 2030 (see figure 2), for a regional total of 1,430 lane miles and an 1,100% increase in HOV lane mileage. Ventura and Imperial Counties do not currently have any existing or planned HOV lanes.

Figure 1 - Study Area

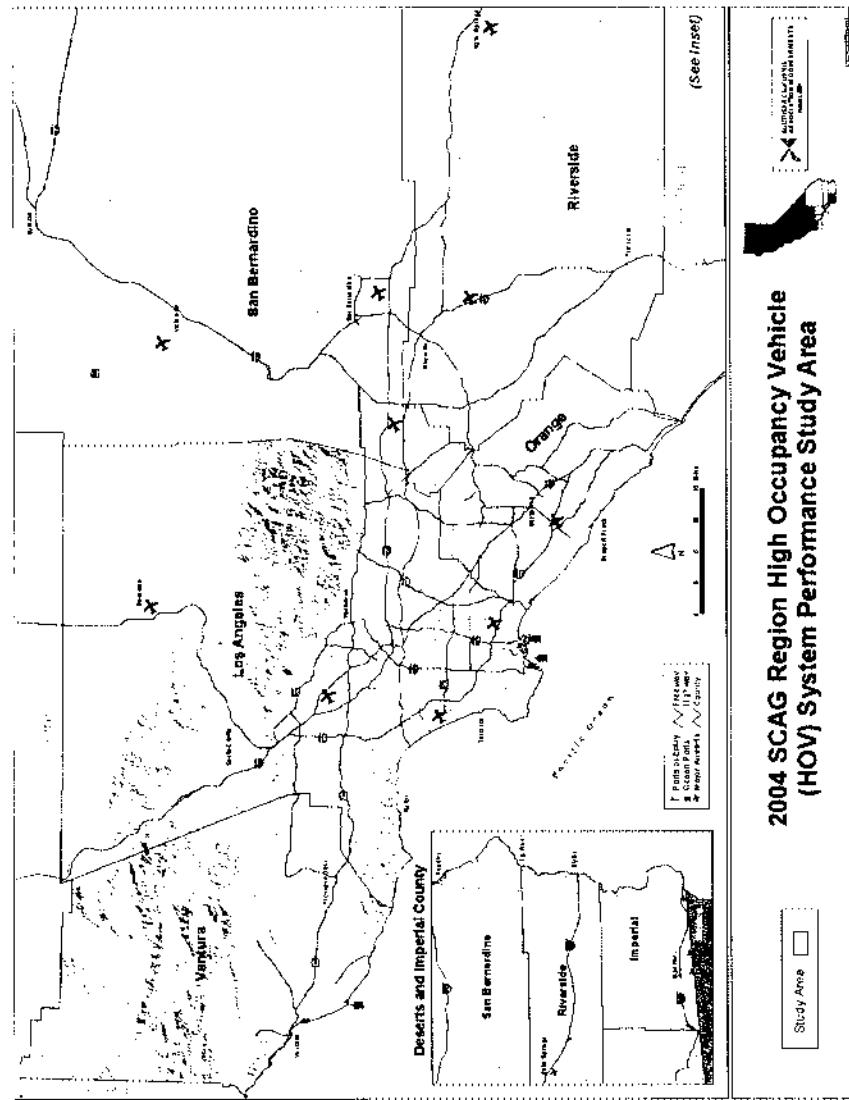


Table 1

By comparison, nationally, HOV lanes have grown from 700 miles in 1990, to 3,000 lane miles in 2004, to an estimated 3,700 lane miles by 2010 or a 329% increase.

By allowing high occupancy vehicles (transit buses, or carpools/vanpools) carrying 2+ persons, and in some cases 3+ persons per vehicle to travel in the HOV lanes, the lanes increase the person carrying capacity and the Average Vehicle Occupancy (AVO) of a particular freeway. Furthermore, HOV lanes provide a travel-time incentive and increased trip reliability for buses, vanpools, and carpools, and also air quality benefits.

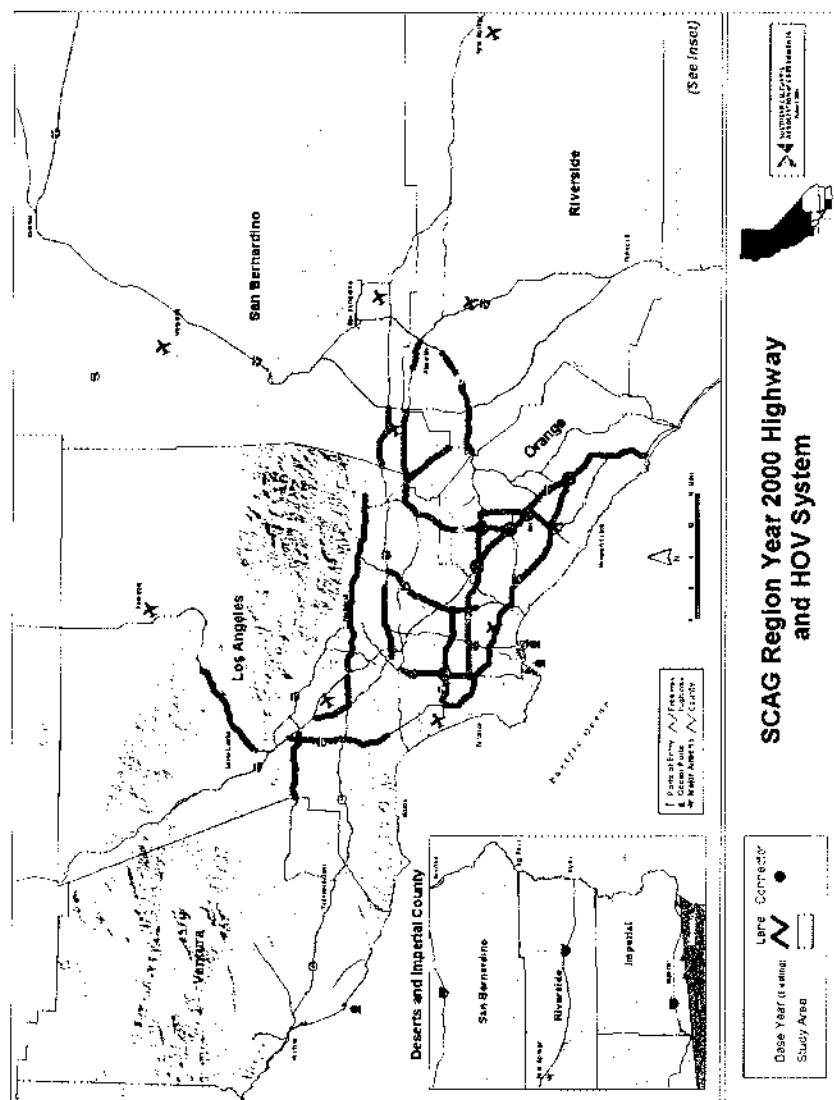
HOV SYSTEM MILEAGE (IN LANE MILES)

	1990	2004*	% Increase
Southern California Region	54.9	664	1109%
United States	700	3000	329%

*Southern California region mileage is for year 2000

Sources: SCAG; HOV Facility Development: A Review of National Trends

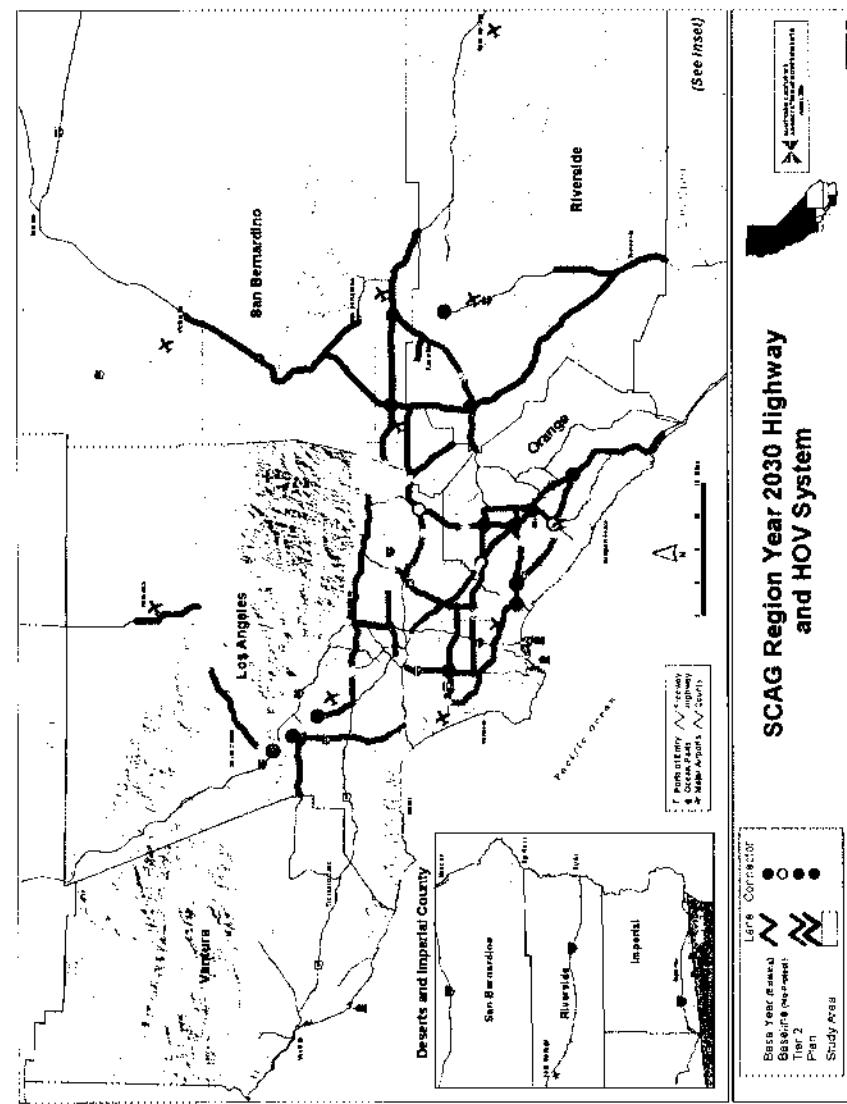
Figure 2



Funding: The preparation of this report was financed in part through grants from the United States Department of Transportation – Federal Highway Administration and the Federal Transit Administration – under provisions of the Transportation Equity Act for the 21st Century (TEA-21). Additional financial assistance was provided by the California State Department of Transportation.

Figure 3

KEY FINDINGS



- ▲ Survey results show that the general public understands and strongly supports (76%) HOV lanes.
- ▲ Introduction of HOV lanes on freeways has been followed by a gradual growth of ridesharing and an increase in the life span of carpooling and vanpooling arrangements.
- ▲ Existing HOV lanes are well utilized, with most operating near full capacity during the peak periods.
- ▲ With the exception of a few instances where the HOV lanes themselves are congested, HOV lanes provide time savings ranging from one minute to fifteen minutes to rideshare vehicles per trip.
- ▲ There is no evidence that HOV Lanes are subject to a greater accident rate than other freeway lanes, per se. However, the installation of direct HOV-to-HOV connectors almost universally reduced accident rates in the vicinity of the affected intersections.

The Southern California Association of Governments (SCAG) conducted this study for the purpose of analyzing the current performance of the HOV lane system in the region. The study area (see figure 1) consists of the counties of San Bernardino, Riverside, and Orange. Los Angeles County is not included in this study per se because the Los Angeles County Metropolitan Transportation Authority completed an *HOV Performance Program Evaluation Report* (The Parsons Brinckerhoff Study Team, November 2002) for Los Angeles County, which the SCAG study is designed to complement.

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Violation rates average 1.2% in the three study counties, well below the 10% level identified as a threshold for concern.

Transit operations currently contribute relatively little to person movement on the HOV lanes in the study counties. However, increased transit service may offer significant opportunity to increase the person-

carrying capacity of the existing HOV network.

Modeling results indicate that regional VMT, VHT, and average speed are all optimized with a 2+ HOV lane system occupancy requirement. This is superior to a system with no occupancy restrictions, which in turn is superior to a 3+ occupancy restriction.

- Continued 24/7 operations of HOV lanes in the study counties is supported and warranted as congestion and peak spreading continue to grow.
- The public surveys express a preference for HOV lane separations from mixed flow lanes. Barrier or striped limited access HOV lanes encourages longer trips in the HOV Lane, and eases enforcement of violations.
- Current occupancy requirements are adequate at this time. Congestion on HOV facilities should be assessed on a case by case basis, and options for greater use of vanpools, transit, or resstriping to add more HOV capacity, where feasible, should be considered, in addition to potential changes in occupancy requirements.
- Direct HOV-to-HOV connectors provide congestion relief for both carpoolers and solo drivers, reduce accident rates in the vicinity of congested interchanges, provide additional time savings for carpoolers,





and contribute to the continuity of the HOV network. As project costs increase, however, detailed analyses of accident reductions, congestion relief, and time savings are needed on a project-by-project basis to justify the investment of public funds.

Implementation:

Continue all-day, all-week (24/7) HOV lane operations and limited access/egress locations.

Address HOV lane congestion and bottlenecks individually.

Continue to monitor HOV lane congestion and study strategies

for converting HOV occupancy requirements on a case by case basis.

Defer 3+ conversion strategies as long as possible. These should be one of the last strategies considered, not the first, and should be implemented only in conjunction with plans to fill excess capacity.

Emphasize transit investments to increase vehicle occupancy.

Complete the HOV lane system to capture all available system and traveler benefits.

Support and maintain an ongoing program of HOV performance monitoring and reporting to support program evaluations.

Undertake future research regarding HOV lane design and implementation including validation of the PtMS data base and safety analysis.

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Resolving Regional Challenges

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